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Management

The Utah Lake Basin provides a microcosm of water-related issues which can be viewed in isolation or as part of a broader exercise in ecosystem management.

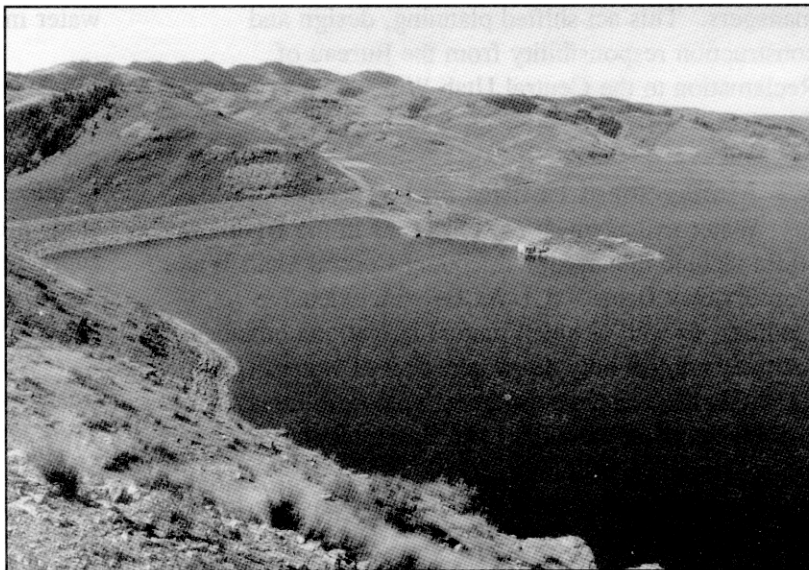
6.1 Introduction

This section describes the water management functions of private and government entities. Water management is the art of delivering water to people and places at the optimum time and in the optimum condition. One present challenge facing water managers in the Utah Lake Basin is transferring agricultural water to urban uses. This is particularly true for the Strawberry Valley Project, which is one of the earliest federal reclamation projects constructed. It supplies irrigation water to south Utah County. But much of the service area is now urbanizing and all the water is no longer needed for agriculture. This is a paid-out project, and the Strawberry Water Users Association (SWUA), who manages the project, would like to convert some of the water to municipal and industrial use. The Bureau of Reclamation and SWUA, however, have differing opinions on how this transfer of use can be accomplished. Outside of federal project jurisdictions, this transformation from agricultural to urban use has been gradual, occurring within the framework of the doctrines of prior appropriation and beneficial use. Judicial approval of markets as the vehicle for transferring water to its highest economic use has kept the process orderly and efficient. State legislative action has broadened the scope of beneficial use to include instream flows for recreation and fish and wildlife purposes.

6.2 Setting

Water management has historically been the responsibility of local water using agencies such as mutual irrigation companies, water user associations and cities. They operate within the rules and guidelines established by state statute which is enforced and

administered by the State Engineer. Since pioneer times in the mid 1800s, most water originating in the basin



Soldier Creek Dam, Strawberry Reservoir

has been used for agricultural crops locally and in Salt Lake County. The Reclamation Service constructed the Strawberry Project in 1906 to bring water from the Uinta Basin to farmers in the Utah Lake drainage. Construction of the Provo River Project began in 1939. This project enabled water users to import water from the Weber and Duchesne rivers and provide water to north Utah County and Salt Lake County metropolitan areas. As Wasatch Front urbanization increased the demand for municipal and industrial water during the 1940s and 1950s, water managers began looking for additional supplies. Congress approved the Central Utah Project (CUP) in 1956 and construction began on facilities to import more Uinta Basin water to communities in Central Utah. The Central Utah Water Conservancy District is the local sponsor.

Meanwhile, in eastern Juab County, farming continued as the primary water user and economic activity. In picturesque Wasatch County, small irrigated farms and a few small towns reflected the heritage and lifestyle of the original Scandinavian and European settlers. Mining near neighboring Park City influenced the culture and economy of early Wasatch County life. In the 1970s, urbanizing of Utah and Salt Lake counties began to spill over into Heber and nearby towns. Condominiums, mountain summer homes, ski resorts and golf courses characterized this urban growth.

Passage of the Central Utah Project Completion Act (CUPCA) in 1992 authorized completion of the CUP, but brought significant changes for water managers. This act shifted planning, design and construction responsibility from the Bureau of Reclamation to the Central Utah Water Conservancy District.

6.3 Management Entities and Systems

Water management organizations in the Utah Lake Basin include the large multicounty Central Utah Water Conservancy District (CUWCD) with extensive facilities, as well as small mutual irrigation companies that may control only a few acre-feet of water. The CUWCD has water management responsibilities that encompass all of the Utah Lake Basin. Its headquarters are at Orem, Utah County.

Smaller conservancy districts serve eastern Juab County, north Utah County and Charleston in Wasatch County. The Provo River Water Users Association operates and maintains the Provo River Project. This includes Deer Creek Dam and Reservoir, the Duchesne Tunnel, the Weber-Provo Diversion Canal, the Provo Reservoir Canal and other facilities. The Strawberry Water Users Association operates the Strawberry Valley Project.

The primary tool for managing water in the basin is storage reservoirs. Table 6-1 and Figure 6-1 show existing lakes and reservoirs in the drainage. Only reservoirs with high and moderate hazard dams are shown on the figure.

6.3.1 Agricultural

Many mutual irrigation companies and water conservancy districts provide management of agricultural water. Table 6-2 shows irrigation companies and water user groups with management responsibilities in delivering water to land areas larger than 350 acres.

The three major water management entities delivering federal reclamation project water are the Strawberry Water Users Association for the Strawberry Valley Project, Provo River Water Users Association for the Provo River Project, and Central Utah Water Conservancy District for the Central Utah Project.

Many of these organizations provide water for M&I uses to cities and districts which own shares of stock. Some cities use this untreated water for lawn and garden irrigation. In some cases, following an approved change in point of diversion and place and nature of use, cities pump their water from wells. Two drainage districts assist in managing water in the Benjamin area of Utah County. More information on agricultural water management can be found in Section 10.

6.3.2 Municipal and Industrial

Most M&I water is managed by cities and their public works departments. Figure 6-2 shows the location of all public community water suppliers in the study area. More data on public and private water suppliers can be found in sections 5 and 11.

6.3.3 Wholesalers

Wholesalers are those agencies that deliver raw or treated water to other agencies for resale to final users. The Central Utah Water Conservancy District is the primary water wholesaler in the Utah Lake Basin. Metropolitan water districts are associated with specific cities to deliver raw or treated water which is then sold at a higher price to residential, commercial and industrial users. Water user associations and most mutual irrigation companies also deliver water to retail entities that own shares of stock. Table 6-3 lists water wholesalers.

6.3.4 Waterfowl

Wildlife management areas at Powell's Slough and Goshen Warm Springs are managed for the benefit of waterfowl. Benjamin Slough and Goshen Bay are proposed as wetland preserves under the Central Utah Project Completion Act. For more information on waterfowl and wildlife-related water management, see Section 14.

6.4 Problems and Needs

With completion of the Central Utah Project, the large dam and reservoir sites have developed most of the available water supply. Chances to import water from adjacent basins will also be nearly exhausted.

Table 6-1
EXISTING LAKES AND RESERVOIRS

Name	County	Owner	Storage (acre-feet)	Use
Bigelow Debris Basin	Juab	Nephi City	65	FC
Miller Canyon Debris	Juab	Nephi City	50	FC
Mona	Juab	Current Creek Irrigation Co.	21,078	IR
Big Elk Lake	Summit	Washington Irrg. Co.	1,000	IR
Duck Lake	Summit	U.S. Forest Service	300	IR
Fire Lake	Summit	U.S. Forest Service	94	IR
Island Lake	Summit	U.S. Forest Service	98	IR
Long Lake I	Summit	Provo Res. Water Users Co.	824	IR
Lost Lake	Summit	US Bureau of Reclamation	1,080	IR
Marjorie Lake	Summit	Timpanogos Canal	285	IR
North Fork Lake #5	Summit	Provo Reservoir Water Users Co.	108	IR
North Fork Lake #6	Summit	Timpanogos Irrigation Co.	420	IR
Star Lake	Summit	Provo Reservoir Co.	314	IR
Teapot Lake	Summit	Provo Reservoir Co.	140	IR
Trial Lake	Summit	Central Utah Water Conserv. Dist.	1,660	IR
Wall Lake	Summit	Timpanogos Irrigation Co.	1,015	IR
Washington Lake	Summit	USBR	2,355	IR
Weir Lake	Summit	Provo Res. Water Users Co.	116	IR
American Fork Debris Basin	Utah	Utah County	90	FC
Battle Creek Debris Basin	Utah	N. Utah County Water Conserv. Dist.	44	FC
Big East	Utah	Payson City Corp.	670	IR
Box Lake	Utah	Payson City Corp.	160	IR
Dry Creek Debris Basin	Utah	N. Utah. County Water Cons. Dist.	226	FC
Dry Lake	Utah	Payson City Corp.	328	IR
Forest Lake	Utah	Undetermined	220	FC
Goshen Reservoir	Utah	Goshen Irrigation Co.	400	FC IR
Grove Creek Debris Basin	Utah	N. Utah. County Water Conserv. Dist.	90	FC
Hobble Creek Debris Basin	Utah	Utah County	120	FC
Maple Lake	Utah	Payson City Corp.	130	IR
McClellan Lake	Utah	Payson City Corp.	20	IR
Mill Pond	Utah	Lehi Spring Creek Irrg. Co.	210	IR
Payson Canyon Debris Basin	Utah	Utah County.	42	FC

Table 6-1 Continued - -
EXISTING LAKES AND RESERVOIRS

Name	County	Owner	Storage ^b (acre-Feet)	Use
Payson Lake	Utah	Payson City	300	WS
Pittsburg	Utah	Am. Fork, Pleasant Grove et.al.	300	IR
Rock Canyon Debris Basin	Utah	Stormwater Service District	102	FC
Salem Pond	Utah	Salem Irrigation Co.	410	IR
Santaquin Debris Basin	Utah	Utah County	75	FC
Silver Lake flat	Utah	N. Utah County Water Cons. Dist.	1,040	WS
Slate Canyon No.2 Debris Basin	Utah	Stormwater Service District	23	FC
Smiths	Utah	Lake Fork Cattle Co.	320	WS
Spring Lake	Utah	Undetermined	140	NA
Summit Creek	Utah	Summit Creek Irrig. Co.	841	IR
Thistle Creek Debris	Utah	Utah County	125	FC
Tibble Fork	Utah	N. Ut .County Water Cons. Dist.	259	IR,RE
Utah Lake ^a	Utah	State of Utah	870,000	IR,RE
Winward	Utah	Payson City Corp.	73	IR
Anderson	Wasatch	Mable Anderson	132	IR
Atkinson No. 1	Wasatch	Brent Hill	20	IR
Center Creek No. 1	Wasatch	Center Creek Irrig. Co.	267	IR
Center Creek No.2	Wasatch	Center Creek Irrig. Co.	161	IR
Center Creek No. 3	Wasatch	Center Creek Irrig. Co.	86	IR
Center Creek No. 5	Wasatch	Center Creek Irrig. Co.	166	IR
Christensen	Wasatch	Heber Power and Light	80	IR
Clyde Lake	Wasatch	Cook Development	75	IR
Deer Creek	Wasatch	USBR	152,560	WS, M&I
Deer Valley	Wasatch	Lake Creek Irrig. Co.	172	IR
Duck Lake	Wasatch	Undetermined	420	IR
Hecla Mining	Wasatch	Stichting Mayflower	134	MI
Jones	Wasatch	Russ Wall, Dee Mills, et. al.	176	IR
Jordanelle	Wasatch	USBR	314,000	WS, M&I
Lindsay	Wasatch	Paul Cook	179	IR
Mill Hollow	Wasatch	Division of Wildlife Resources	317	RE
Three Lakes	Wasatch	Prestige Pictures Ind.	24	IR
Wasatch	Wasatch	Undetermined	1000	FC
Witt Lake	Wasatch	Lake Creek Irrig. Co.	853	IR
Key to Use Categories: MI - Mining M&I - Municipal/Industrial				
FC - Flood Control IR - Irrigation				
WS - Water Storage RE - Recreation				

a Capacity at compromise elevation.

b Storage capacity shown may not equal actual amount stored.

Figure 6-1
EXISTING MAJOR LAKES AND RESERVOIRS
Utah Lake Basin

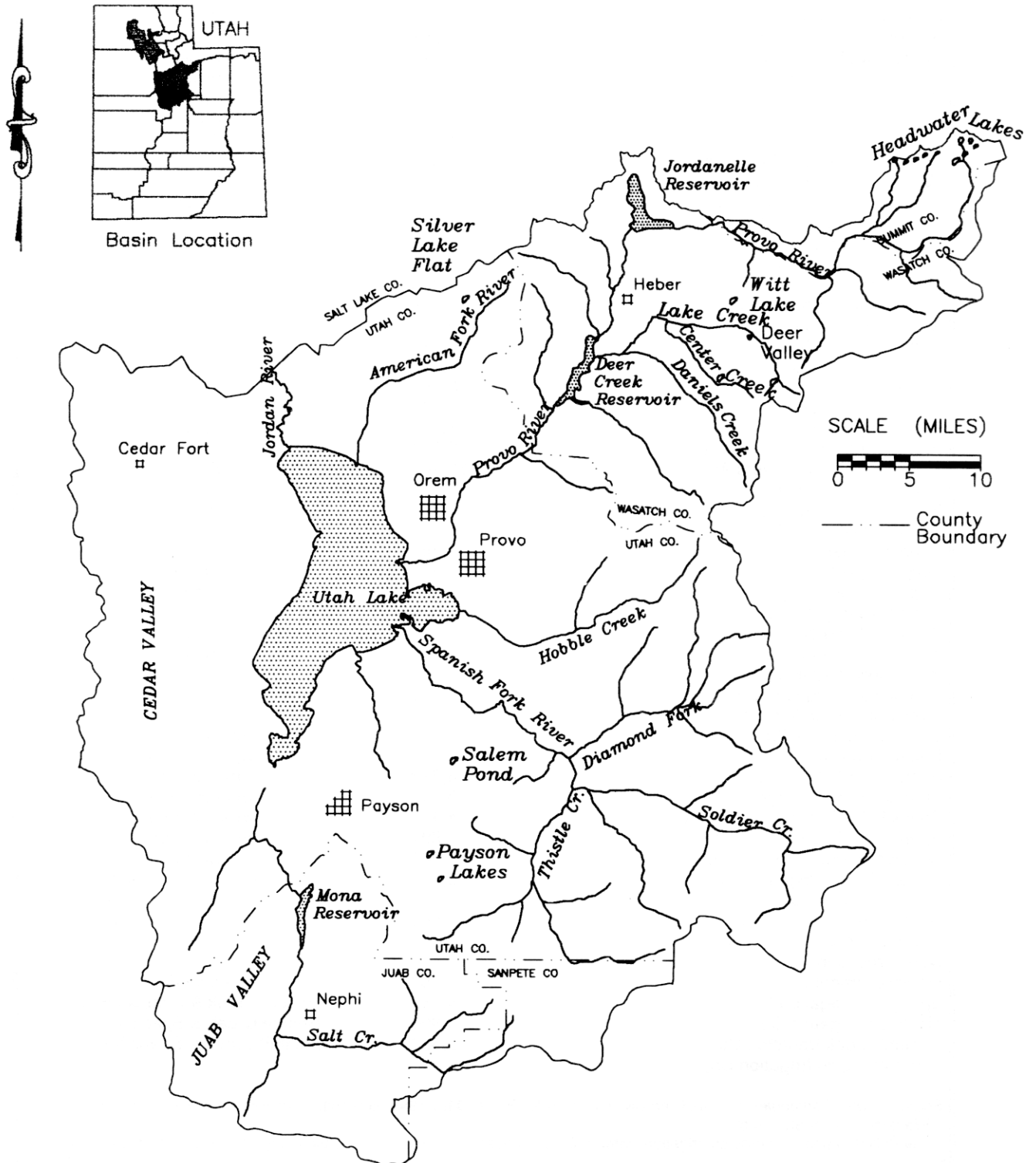
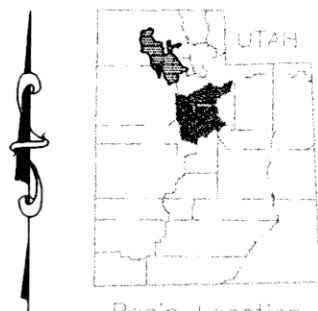


Table 6-2
IRRIGATION WATER PROVIDER ORGANIZATIONS

Organization	Acres served	River Area
Alpine Irrigation Co.	1,750	Provo
American Fork Irrigation Co.	5,253	Provo
Bench Creek Irrigation Co.	512	Provo
Center Creek Irrigation Co.	1,600	Provo
Central Utah WCD ^a	5,253	Provo
Charleston Irrigation Co.	894	Provo
Daniel Irrigation Co.	1,800	Provo
Fort Field Little Dry Creek. Irrg. Co.	502	Provo
Highland Conservation District	2,500	Provo
Hobble Creek Irrigation Co.	1,031	Provo
Lake Creek Irrigation Co.	1,141	Provo
Lehi Irrigation Co.	588	Provo
Main Creek Irrigation Co.	907	Provo
Midway Irrigation Co.	380	Provo
North Bench Irrigation Co.	749	Provo
North Fields Irrigation Co.	2,655	Provo
Utah Lake Distributing co.	8,630	Provo
North Union Irrigation Co.	1,792	Provo
Pleasant Grove Irrigation Co.	3,799	Provo
Provo Bench Canal & Irrigation. Co.	4,500	Provo
Provo City Corp.	6,400	Provo
Provo Reservoir Water Users Co.	19,900	Provo
Provo River Water Users Assoc.	53,400	Provo
Rock Canyon Water Co.	530	Provo
Sagebrush Irrigation Co.	499	Provo
Spring Creek Irrigation Co.	653	Provo
Sunrise Irrigation Co.	402	Provo
Timpanogos Irrigation Co.	2,249	Provo
Upper E. Union Irrig. Co.	623	Provo
Wallsburg Irrigation Co.	2,038	Provo
Wasatch Extension	800	Provo
Wasatch Irrigation Co.	1,200	Provo
Big Hollow Irrigation Co.	1,000	Spanish Fork
Washington Irrigation Co.	2,476	Spanish Fork
Lake Shore Irrigation Co.	4,540	Spanish Fork
Salem Irrigation & Canal Co.	2,615	Spanish Fork
Salem Pond Co.	600	Spanish Fork
Spanish Fork W. Field Irrig. Co.	6,613	Spanish Fork
Spanish Fork S. Irrigation Co.	6,500	Spanish Fork
Spanish Fork East Bench Irrg. Co.	4,446	Spanish Fork
Spanish Fork S.E. Irrigation	891	Spanish Fork
Strawberry Water Users Assoc.	45,000	Spanish Fork
Currant Creek Irrigation Co.	2,100	N. Juab & Goshen Valleys
Mona Irrigation Co.	1,460	N. Juab & Goshen Valleys
North Canyon Irrigation Co.	1,580	N. Juab & Goshen Valleys
Warm Springs Irrigation co.	1,300	Goshen Valley
Nephi Irrigation Co.	11,945	N. Juab Valley
Indianola Irrigation Co.	2,180	Spanish Fork
Springville Irrigation Co.	4,050	Hobble Creek & Spanish Fork
Mapleton Irrigation Co.	3,800	Hobble Creek & Spanish Fork
Summit Creek Irrigation Co.	3,500	Summit Creek & Spanish Fork
East Santaquin Irrigation Co.		

Source: *Water Companies of Utah*, Utah Division of Water Rights, May 1990, and phone conversations with Jack Young, Wasatch County SCD et al.

^a The CUWCD does not provide irrigation water directly to irrigator, but water for irrigation may be delivered to district facilities.



Basin Location

Figure 6-2

PUBLIC MUNICIPAL WATER PROVIDERS Utah Lake Basin

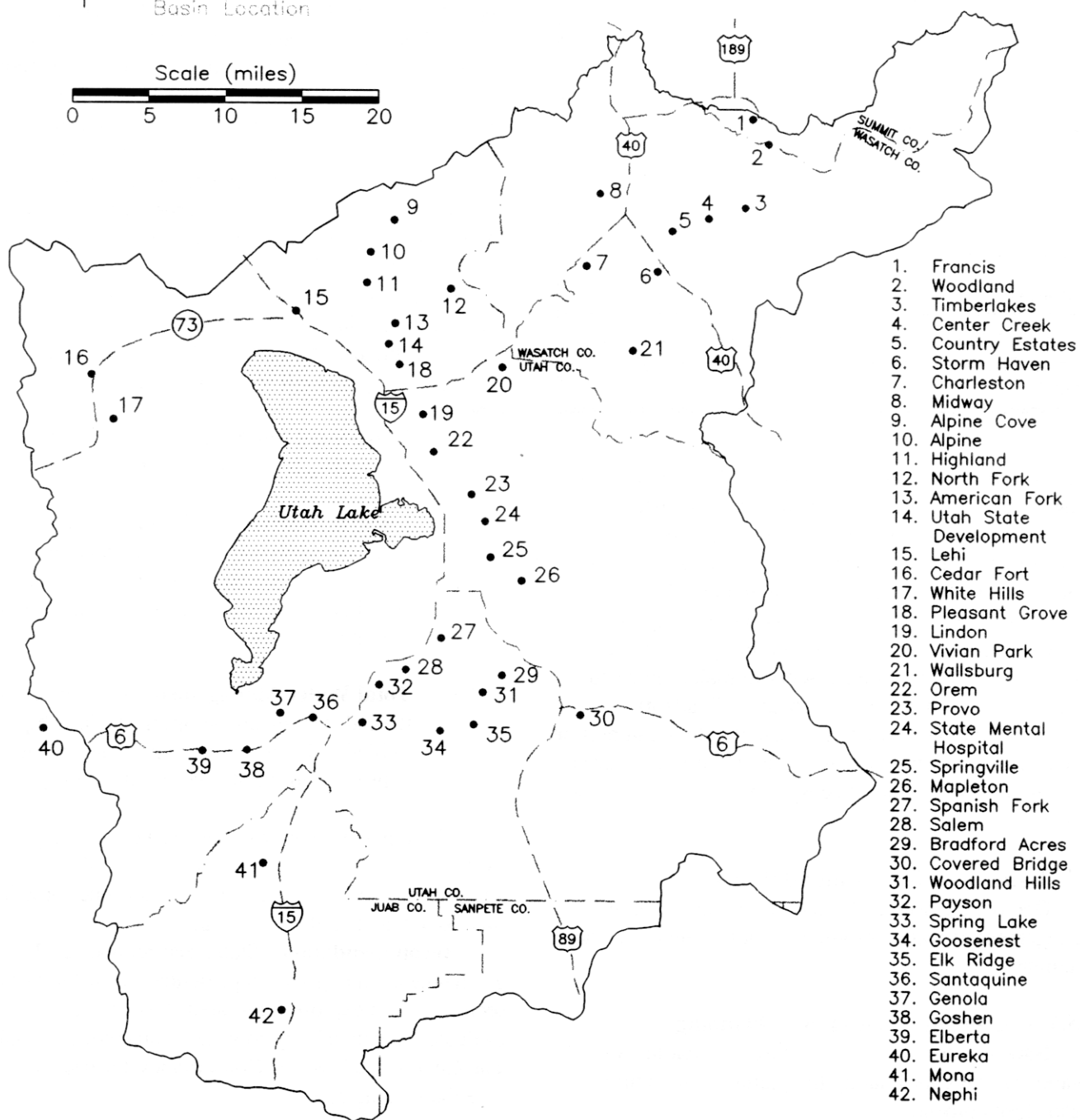


Table 6-3
WATER WHOLESALERS

Metropolitan Water Districts

American Fork
Lehi
Orem
Pleasant Grove
Provo

Conservancy Districts

East Juab
Central Utah
North Utah County
Charleston

Source: Utah League of Cities & Towns, *Directory of Local Government Officials*. Salt Lake City, Utah, 1996.

Future growth may result in smaller, less economically feasible dam sites being reconsidered for construction.

Following the current large water project development period, long-range planning will become more crucial. Public involvement and collaboration between competing water interests will be required. There is a growing need for education programs to prepare present and future leaders to make informed choices about how water is managed. Tradeoffs between economic and environmental values can best be made by people who understand the nature of water and the role it plays in natural ecosystems and in economic growth.

6.5 Issues and Recommendations

One policy issue is discussed for improving the management of water resources: Coordinated long-range planning.

6.5.1 Coordinated Long-Range Planning

Issue - A forum does not exist for creating an awareness and coordinating the planning for future water development.

Discussion - The Central Utah Project Completion Act has required planning teams to be formed and extensive studies performed to facilitate long-range

planning for remaining project facilities. This may serve as a model for coordinated long-range planning between CUWCD, the state and local water management agencies. Subsequent planning effort should begin with the premise that a wide range of traditional and innovative approaches will be considered. The process must encompass a variety of techniques to help water suppliers determine the appropriate mix of resources for meeting customer needs. It should provide information on potential consequences and aid in judging the value of tradeoffs among resource strategies. It must lead to better long-term decisions that strike a balance between often competing objectives. The electric utility industry has developed a process called Integrated Resource Planning to deal with environmental concerns, risks arising from future uncertainties, and the emergence of conservation requirements.

Integrated Resource Planning is being used in other states to find solutions to difficult water supply and quality problems. As shown below, it may guide state water planning through the next phase of basin plan reports.

- **Traditional Supply Planning:** minimize risks and maintain high degree of reliability.
- **Integrated Resource Planning:** a more inclusive approach where environmental, engineering, public health, financial, pricing, social and economic considerations all feed into the planning process.
- **Total Water Management:** seeks to inspire the industry by encouraging stewardship, unified policies, ecosystem management, conservation, public and political support.

These planning approaches are not mutually exclusive. Each should build on the preceding approaches, i.e., we have done the first one, now it is time to advance to the next step.

Recommendation - State, district and local governments, along with representatives of the private sector, should explore Integrated Resource Planning and evaluate its applicability to water management problems. The Central Utah Water Conservancy District should take the leading role. ❖ ❖